

## **REMARKS/ARGUMENTS**

### **Introduction**

This paper has been filed concurrently with a Petition to Revive for Unintentional Abandonment and the proper fee as well as a Formal Drawings Transmittal and an Information Disclosure Statement.

This paper is responsive to the Office Action mailed February 27, 2003. Through no fault of applicant the case was allowed to lapse and there was apparently an attempt made by prior counsel to revive it in December, 2003.

The Applicant thanks the Examiner for the careful review and consideration of this application. Applicant has conducted its own careful review of the application specification and claims. A number of corrections have been made to the specification and claims in order to improve readability and to correct typographical errors. No new matter has been introduced by these amendments. If the Examiner would like a substitute specification due to the relatively large number of amendments, applicant stands willing to provide one upon request.

Claims 1-8, 11-13, 15-22, 25-27, 29-34, 37-39, 41-44 and 47-49 stand rejected under 35 U.S.C. §103(a). Claims 9, 10, 14, 23, 24, 28, 35, 36, 40, 45, 46 and 50 stand objected to. The objected-to claims have been amended to recite their respective intervening limitations and are thus now allowable.

Objections to the Specification and Drawings

Applicant notes that the drawings are deemed informal but suitable for examination.

Formal drawings are being provided at this time.

The specification has been amended in a number of locations in part as suggested by the Examiner and in part to improve readability and use more consistent terminology. No “new matter” has been added by these amendments. A number of amendments were made to the claims to improve readability and utilize consistent terminology.

**I. Discussion of Rejections under §103**

Claims 1-8, 11-13, 15-22, 25-27, 29-34, 37-39, 41-44 and 47-49 stand rejected under 35 U.S.C. §103 as allegedly being unpatentable over Chen et al. (USP 5,536,330) in view of Lewis et al. (USP 5,814,275), Zabala et al. (USP 6,418,804) and Yamakawa et al. (USP 6,134,960).

The office action asserts:

“Claims 1-8, 11-13, 15-22, 25-27, 29-34, 37-39, 41-44 and 47-49 are rejected under 35 U.S.C. § 103 as being unpatentable over Chen, A. et al., in view of [Lewis, G. et al. and Zabala, R. et al.], in view of Yamakawa, T. et al.

“The prior art of Chen et al. teaches using a reaction chamber, flow controller, flow detector and gas flow system in a semiconductor wafer integrated circuit structure producing apparatus that covers most features of the instant invention except for (1) having a flow comparator for detecting occurrence of blockages or occlusions in a flow path channel by noting changes in gas flow rate apart from the baseline gas flow rate; and except for (2) having a heating element type of flow detector with a temperature measurement device and power supply power consumed measurement device, all used in a combination to determine gas flow rate. However, the prior art of Lewis et al. discloses the concept of detecting obstructions [blockages, bubbles or occlusions] in a fluid flow line by monitoring for the occurrence of pressure changes, where of course any pressure change is

inherently accompanied by an associated flow rate change in accordance with known laws of fluid mechanics; e.g. – Bernoulli's formula. Also & similarly, the prior art of Zabala et al. discloses such a partial blockage event as it develops in a fluid passageway via a flow monitoring method- please see their Column 3, line 7 – Column 5, line 35 along with claims 24 & 30 & part 42 in Figure 1 for relevant details of a flowmeter approach that is quite compatible/adaptable toward the pressure monitoring system of Lewis et al.; Likewise, please refer to Lewis et al. at their Column 1, line 55 – Column 3, line 45 together with Figure 1 thereof for pertinent details. It would have been obvious to one of ordinary skill in the art to consider identifying a blockage/occlusion condition in a flowline by such a flow rate change occurrence because the change in pressure is concomitant, coexisting and physically related to the change in flow rate via known Physics equations. Also, the prior art of Yamakawa et al. teaches the technique of measuring flow rate in a passageway on the basis of heat transfer phenomena that take place between heaters and the moving fluid by determining the differences in electrical power supplied to the heaters; i.e. – since power is equal to  $I^2 \times R$  in the classic relation that involves current  $I$  and resistance  $R$ ; the Applicant is advised to review Yamakawa et al. at their Column 1, line 22 – Column 6, line 22 along with Figures 1A, 1B & 5 for relevant details. It would have been obvious to one of ordinary skill in the art to consider measuring a flow rate change in this manner since the difference in Joule Heating  $I^2 \times R$  produced in the electrical heaters is known to transfer into the moving fluid {by conduction & convection} and a change in fluid flow status will produce a corresponding thermal flux change [thus resulting in a observable/detectable temperature change between two sensor point locations in the fluid, flowpath- when any partial flow obstruction or blockage occurs in same flowpath].”

The difficulty with the instant rejection is that it is clearly based upon impermissible hindsight reconstruction of the invention from a plurality of unrelated prior art references.

First, Chen et al. admittedly lacks “a flow comparator for detecting [the] occurrence of blockages or occlusions in a flow path channel by noting changes in [the] gas flow rate apart from the baseline gas flow rate.” The office action suggests erroneously that this missing element can somehow be supplied by (1) Lewis et al. or (2) Zabala et al. or (3) Yamakawa et al.

Let us turn first to Lewis et al. to discuss why it cannot rationally be combined with Chen et al.

Lewis et al. is directed to a system for detecting an occlusion due to, e.g., a blood clot, in a laboratory test device for human blood. Human blood is a liquid, much like water, and is, hence, essentially incompressible. The device, therefore, operates by measuring circumferential distortion of a tube carrying the liquid (Col. 4-5). As discussed at Col. 5 the flow is not continuous as in the presently claimed invention, but is pulse-like in nature. It is the pulses that are measured and there is no attempt made to measure gas flow of any kind.

Furthermore, were one to use the device of Lewis with the device of Chen, it would result in measuring nothing because there are no pulses available to measure that would be sufficient to distort the circumference of the typical stainless steel gas piping used in semiconductor fabrication equipment.

Accordingly, the combination fails.

Yamakawa et al. adds nothing because all it teaches is the construction of a thermal-type intake gas volumetric measuring device for an automobile. Combining Yamakawa et al. with Chen does not yield the presently claimed invention.

Finally, Zabalo et al. is directed to "an inspection and recording system for fluid flow testing of cooling passageways in gas turbine buckets." The idea is to force liquid through passageways during a manufacturing-only test procedure to verify that fluid, in fact, passes

through them. If the liquid flows, the television system can see it and the device passes test. If it does not, it fails. This has nothing at all to do with the presently claimed invention.

A. Standard under 35 U.S.C. §103

To sustain a proper rejection of a Claim under §103, all the portions of the claimed invention must be found or suggested in the cited art. Further, there must be suggestion in the art to combine any art.

B. Rejection

Claim 1 recites a method in which a flow detector is interposed in the gaseous flow path in a semiconductor fabrication device. The flow detector determines a flow rate of gas flowing from the gas supply. In the Office Action it is claimed that Chen teaches a flow detector. With all due respect, there does not seem to be any indication in Chen of a flow detector that determines a flow rate of gas. Further, nothing in Chen suggests the use of such a flow detector in the use of the Chen apparatus and/or method.

Without any flow detector, and since Chen does not measure any flow, the addition of any of the other art dealing with flow detection methodologies is not suggested by Chen. Further, nothing in Lewis or Zabala, or Yamakawa suggests adding the portions cited therein to the apparatus or method. of Chen.

Accordingly Claim 1 is believed to be allowable over the cited art. Applicant respectfully traverses the rejection of Claim 1.

Claims 15, 29, and 41 are the other original independent Claims. Each has similar features to Claim 1 as described above. Accordingly Claims 15, 29, and 41 are believed to be allowable over the cited art for this reason, among others. Applicant respectfully traverses the rejections of these Claims.

All the other claims depend from these independent Claims. Applicant respectfully traverses the rejections of these Claims for this reason as well, among others.

## **II. Conclusion**

It is believed that this paper places the above-identified patent application into condition for allowance. Early favorable consideration of this Amendment is earnestly solicited.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

This response is submitted with the proper fees and petition to revive. The Commissioner

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is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account  
No. 50-1698.

Respectfully submitted,

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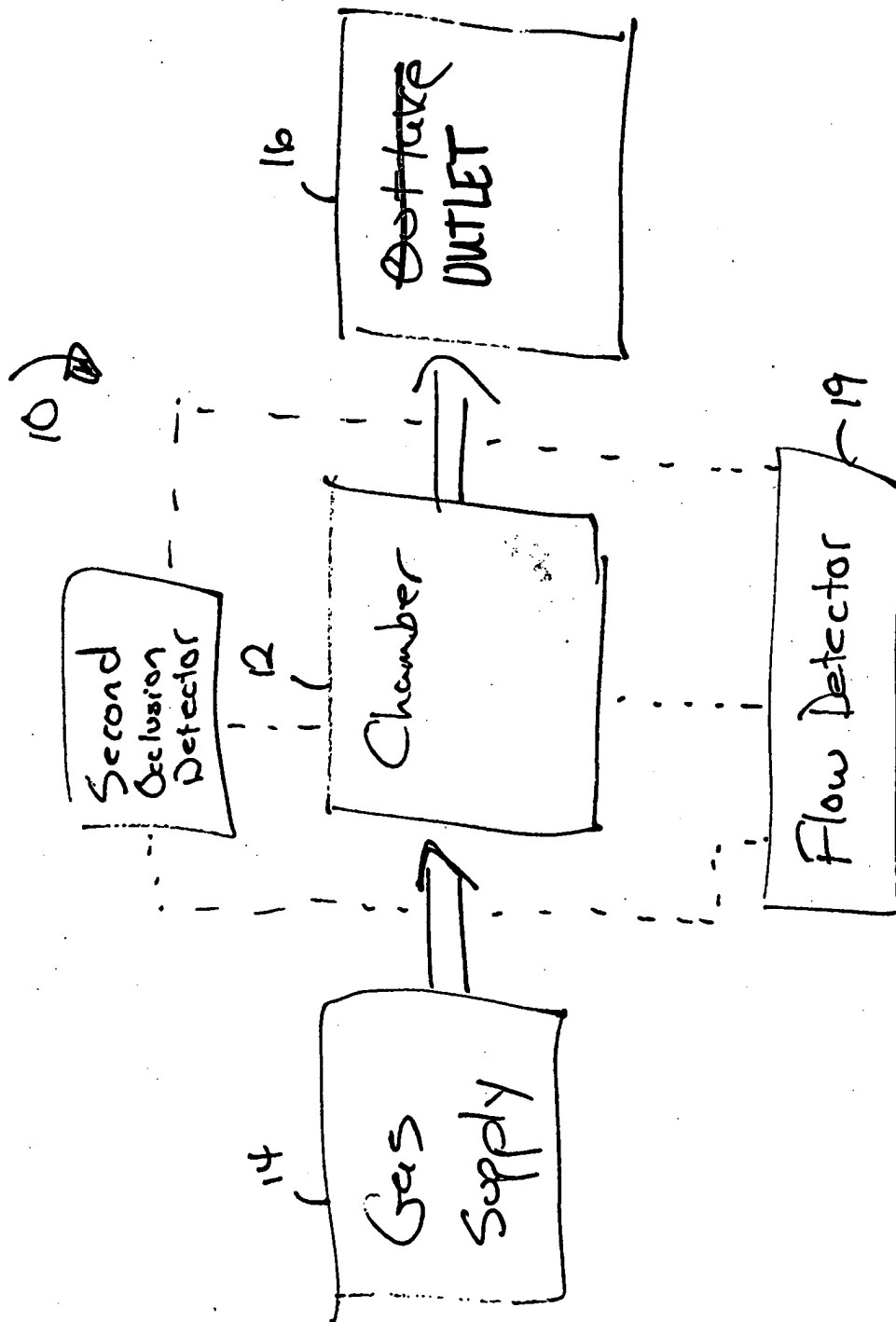


FIG. 1